

## **TROPICAL RAINFALL MEASURING MISSION**

**November 8, 1999 - November 14, 1999**

**DOY 312 - 318**

**Day of Mission 711 - 717**

### **TRMM MISSION OPERATIONS**

- TRMM is flying in the -X Forward direction as of 99-313, at 21:42:52z.
- The next Yaw maneuver is scheduled for December 10th (99-344)
- Delta-V maneuver #138 is scheduled for November 16th (99-320) using the ISP thrusters.
- The Beta angle range for 99-319 to 325 is -21.6° to -50.8°.
- The Leonid Storm Peak is currently predicted for 99-322 at 02:53z.

### **TRMM SUBSYSTEM OPERATIONS**

#### **Attitude Control System (ACS)**

ACS System Tables #21, 53, 76, and 84 were copied from RAM to EEPROM on 99-313. This will simplify the ACS cold start recovery procedure by reducing the number of tables that must be reloaded to RAM.

A Yaw Maneuver from +X to -X was performed on 99-313 at 21:42:52z

Delta-V maneuver #136 was successfully conducted on 99-314 at 15:40:20z and 16:26:06z, for durations of 39.625 and 22.0 seconds respectively, using the ISP thrusters. The off-modulation of the -Pitch thruster (#6) for burn 1 and 2 was 38.8% and 35.8% (61.2% and 64.2% on time). The remaining fuel is 669.788 kg, and the final apogee and perigee height is 354.77 km x 347.61 km.

Delta-V maneuver #137 was successfully conducted on 99-317 at 16:48:08z and 17:33:52z, for durations of 41.375 and 29.375 seconds respectively, using the ISP thrusters. The off-modulation of the -Pitch thruster (#6) for burn 1 and 2 was 37% and 38% (63% and 62% on time).

The ESA experienced Moon interference in quadrants 2 and 4 during 99-315 through 99-318. The ACS performed nominally during the transitions between 3 and 4 head control.

All parties that attended the ACS jitter patch test review on 99-315 were satisfied with the results generated by the Flight Software Group. The RAM installation and patch removal procedures have been tested with the simulator. The jitter patch will be loaded to RAM on 99-319 during orbit night.

#### **Flight Data System (FDS)/Command & Data Handling (C&DH)**

The frequency standard continues to drift in the negative direction. The frequency standard offset is currently set to x'76F' with a current drift rate of -4.2  $\mu$ s/hr. The UTCF was adjusted by

-882  $\mu$ s on 99-318 at 23:09:06z. The current UTCF value is 31535996.855437 sec with a current drift value of 0  $\mu$ s.

Q-Channel restarts occurred on 99-312 at 12:58:58z, 99-313 at 17:42:59z, 99-315 at 09:20:58z, and 99-317 at 23:22:16z.

### **Reaction Control Subsystem (RCS)**

The RCS subsystem performed nominally during this period. See the ACS section for specific Delta-V information.

### **Power Subsystem**

The Power subsystem is operating nominally.

### **Electrical Subsystem**

The Electrical subsystem operated nominally during this period.

### **Thermal Subsystem**

The Thermal subsystem operated nominally during this period.

### **Deployables Subsystem**

The Deployables subsystem performed nominally during this period.

### **RF/Communications Subsystem**

The RF/Communications subsystem performed nominally during this period.

## **SPACECRAFT INSTRUMENTS**

TRMM Leonid strategy for the upcoming storm is the same as the one used for the 1998 Leonid storm. The timeline for the instruments turn off/on during the storm has been completed. The instruments will be powered off approximately six hours prior to the peak and will be powered on at the Mission Director's discretion after the peak occurs. The peak is currently estimated at 99-322 at 02:53:00z

### **CERES**

The CCR which involves creating and testing TSMs to monitor the CERES current is expected to be closed out by the end of the year. A walk-through is being planned in December for the removal of CERES from load-shed plan and the test results.

Currently plans are to resume operations once the TERRA spacecraft has completed checkout in January 2000. There are no plans to remove power from the instrument once operations have resumed.

## **LIS**

LIS performed nominally during this time period. The Heater Auto Select remains disabled pending further MSFC analysis.

## **PR**

PR performed nominally during this time period. The list of Internal Calibration times over Australia in which PR was not radiating is listed below:

1999/312:04:05:11 - 04:07:18z  
1999/313:02:53:52 - 02:56:02z  
1999/313:19:11:57 - 19:16:32z  
1999/314:03:16:27 - 03:18:31z  
1999/315:02:04:57 - 02:07:08z  
1999/315:18:23:03 - 18:28:07z  
1999/316:00:53:39 - 00:55:52z  
1999/317:01:16:09 - 01:18:17z  
1999/317:17:34:14 - 17:36:41z  
1999/318:00:04:33 - 00:06:47z

## **TMI**

TMI performed nominally during this time period.

## **VIRS**

VIRS performed nominally during this time period.

The Cold Stage Temperature reached a maximum of 114.8 K during the beta angle 0° crossing.

## **GROUND SYSTEM**

All Y2K rollover testing has been completed on string 3, and system cleanup is being completed. String 3 operational readiness testing will begin after the cleanup and is expected to last for approximately 1-2 weeks. String 2 remains the prime Mission Planning string.

The planning for incorporating release 8.1 into the ground system has begun. The new release will be delivered to string-3 on November 22. Testing is expected to be completed mid-December.

## **Event Reports**

No new Event Reports were opened during this week.

**Generic Late Acquisition Reports (for TTRs 19639)**

No new Late Acquisition Reports were opened during this week.

**New Anomaly**

No new Anomaly Reports were opened during this week.

**Recurring Open Anomalies**

No recurring anomalies were seen during this period.

Prepared by:  
Joseph Kowalski  
TRMM Systems Engineer

Approved by:  
Lou Kurzmilller  
FOT Manager